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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HOGANS, DAVID L	
ART UNIT	**PAPER NUMBER**
2813	

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/940,638	NAKAYAMA ET AL.	
	Examiner	Art Unit	
	David L. Hogans	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6 and 8-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6 and 8-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12-17-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Remarks filed on February 17, 2004.

Status of Claims

Claims 1, 3-6 and 8-12 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 3-6 and 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by 6,310,360 to Forrest et al.

In reference to Claims 1, 3, 6, 8, 11 and 12, Forrest et al. teaches:

- an electroluminescent film device with a light-emitting layer where an excited state generated by electron hole recombination is utilized for photon generation (See columns 9-19 lines 01-20)
- a light-emitting layer containing a material in which the quantum number of orbital angular momentum and the quantum number of excited state spin are convertible into each other by their interaction and wherein the material is a molecule in which a heavy metal atom is bonded to or coordinated to an organic

material ($Ir(ppy)_3$); and (See column 9 lines 17-65 and columns 12-15 lines 59-20 and Figure 1)

- a light-emitting molecule (DCM2), each as an independent dopant (See column 9 lines 17-65 and columns 12-15 lines 59-20 and Figure 1)

The Examiner notes that the limitation wherein the light-emitting layer is an organic film formed by simultaneous vapor deposition, in Claims 6, 11 and 12, is a processing limitation and, therefore, carries no weight in a claim drawn to a device.

"Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

A *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and

that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

In reference to Claims 4, 5, 9 and 10, Forrest et al. teaches:

- incorporating all arguments of Claims 1 and 6 and noting that Forrest et al. teaches wherein the light-emitting molecule (PtOEP) is a molecule in which a heavy metal atom (Pt) is bonded or coordinated to an organic material (See column 15 lines 25-60)

The Examiner notes that column 15 lines 25-60 teaches a intersystem crossing agent (ISC) comprised by benzil or other ISC agents. The Examiner also notes that column 9 lines 17-36 teaches that ISC agents may be comprised by $Ir(ppy)_3$ or other metals of the third row of the periodic table coupled to organometallic compounds.

Response to Arguments

2. Applicant's arguments filed February 17, 2004, have been fully considered but they are not persuasive.

3. Initially, the Applicant proffers that in the present invention, on the other hand, a spin conversion material, a light-emitting molecule and a base material are simultaneously deposited, and molecules of these materials are present in a mixed state, thus, the material in Forrest is clearly different from the material of the present

invention in structure, and not just in the process in which the material is made. First, the method of making a device is not germane to the patentability of the device itself. Therefore, the limitation concerning simultaneous vapor deposition of the light-emitting layer is without moment. Second, Applicant proffers the notion that Applicant's claim scope encompasses a light-emitting layer comprised by three (3) components. The Examiner's reading of Claims 1 and 6 only provides for two (2) materials comprising the light-emitting layer (i.e. – the material in which the quantum number of orbital angular momentum and the quantum number of excited state spin are convertible into each other and a light-emitting molecule). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a base material) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Finally, the Examiner notes that Forrest et al. does teach wherein further improvement may be expected by mixing the host (base material), phosphorescent sensitizer (spin conversion material), and fluorescent dye (light-emitting material) (See column 14 lines 65-67).

Next, the Applicant argues that in the present invention, the base material, spin conversion material and light-emitting molecule can be positioned within small area, such as not more than 1 nm or several molecules; in Forrest, the average distance between the spin conversion material and light-emitting molecule is approximately 10

to 100 times greater. Assuming, *arguendo*, that Applicant's claim language supports a base material, spin conversion material, and a light-emitting molecule within the light-emitting layer, the Examiner is uncertain how the average distance between the spin conversion material and light-emitting molecule is approximately 10 to 100 times greater in Forrest et al. For example, Forrest et al. teaches in column13 lines 20-30 that the luminescent layer consists of an alternating series of 10 angstrom thick layers. Therefore, the furthest apart the spin conversion material and the light-emitting molecule are is 1 nm, and the majority are less than 1 nm. As Applicant proffers that the spin conversion material and light-emitting molecule are not more than 1 nm apart and Forrest et al. teaches that the spin conversion material and light-emitting molecule are not more than 1 nm apart, the Examiner is uncertain how the average distance between the spin conversion material and light-emitting molecule is approximately 10 to 100 times greater in Forrest et al., as proposed by the Applicant.

Finally, the Applicant argues that in the present invention, on the other hand, the three materials are mixed as described above so that efficiency of light emission is higher as compared with that of the structure of Forrest wherein the three materials are contained in the separate layers. First, the Examiner notes that the claim language of Claims 1 and 6 do not support a light-emitting layer made from three (3) components but only supports a light-emitting layer made from two (2) components (spin conversion material and a light-emitting molecule). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is

noted that the features upon which applicant relies (i.e., a base material) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, the Examiner notes that Forrest et al. teaches wherein further improvement may be expected by mixing the host (base material), phosphorescent sensitizer (spin conversion material), and fluorescent dye (light-emitting material) (See column 14 lines 65-67). Finally, the Applicant offers that the three materials are mixed as described above so that efficiency of light emission is higher as compared with that of the structure of Forrest et al. The Examiner notes that the specification makes no mention of improved light emission efficiency over Forrest et al. nor provides a quantitative measurement of light emission efficiency of either Applicant's invention or Forrest's et al. invention. The Examiner notes that MPEP §§ 716.01(c) and 2145 states that arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965). In order for the Applicant's arguments to be considered of probative value, the objective evidence must be factually supported by actual proof. See MPEP § 716.01(c).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Hogans whose telephone number is (571) 272-1691. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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